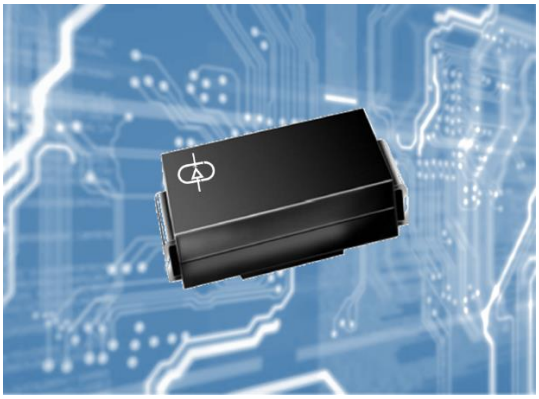
SURFACE MOUNT ULTRA FAST RECTIFIER

DESCRIPTION:



The ALPUS1M is Surface Mount Ultra Fast Rectifier with High forward surge capability in Low profile package, low switching losses and it has high efficiency operation.

ALPUS1M meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive, and telecommunication.

FEATURES:

- Low profile package
- Ideal for automated placement
- Glass passivated pallet chip junction
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- HALOGEN Free
- RoHS Compliant
- REACH Compliant

APPLICATIONS:

- High frequency rectification
- Freewheeling Applications in switching mode converters
- Inverters for consumer, computer, automotive, and telecommunication.

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**ALPUS1M**	**UNIT**
Maximum repetitive peak reverse voltage	V_{RRM}	1000	V
Maximum RMS voltage	V_{RMS}	700	V
Maximum DC blocking voltage	V_{DC}	1000	V
Maximum average forward rectified current at T_L = 110 °C	$I_{F(AV)}$	1.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30	A
Operating and storage temperature range	T_J, T_{STG}	-55 to +150	°C

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
I_{FSM}	30 A
t_{rr}	50 ns, 75 ns
V_F at I_F	1.0 V, 1.7 V
T_J max.	150 °C
Package	SMA (DO-214AC)
Diode variations	Single

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**ALPUS1M**	**UNIT**
Maximum thermal resistance	$R_{\theta JA}$ (1)	75	°C/W
	$R_{\theta JL}$ (1)	27	
Note (1) PCB mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad area			

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**ALPUS1M**	**UNIT**
Maximum instantaneous forward voltage	1.0 A	V_F (1)	1.7	V
Maximum DC reverse current at rated DC blocking voltage	T_A = 25 °C	I_R	10	µA
	T_A = 100 °C		50	
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	t_{rr}	75	ns
Typical junction capacitance	4.0 V, 1 MHz	C_J	10	pF
Note (1) Pulse test: 300 µs pulse width, 1 % duty cycle				

All ALPINESEMI™ parts are manufacturered at the facility approved ISO/TS 16949, ISO 9001 and ISO 14001

TYPICAL DEVICE CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

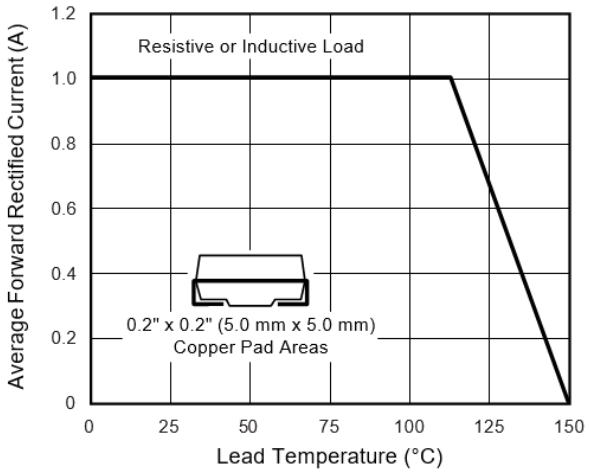


Fig.1 Forward Current Derating Curve

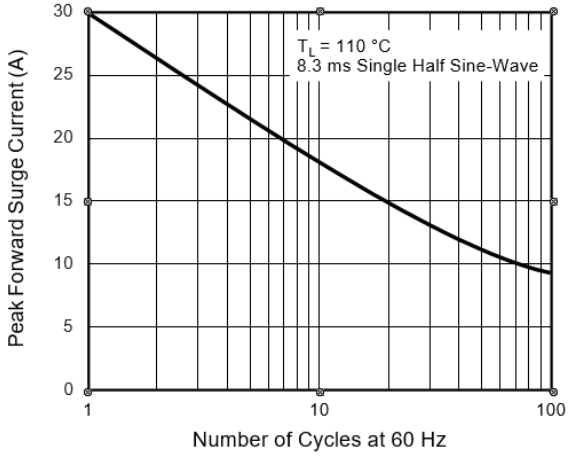


Fig.2 Maximum Non-Repetitive Peak Forward Surge Current

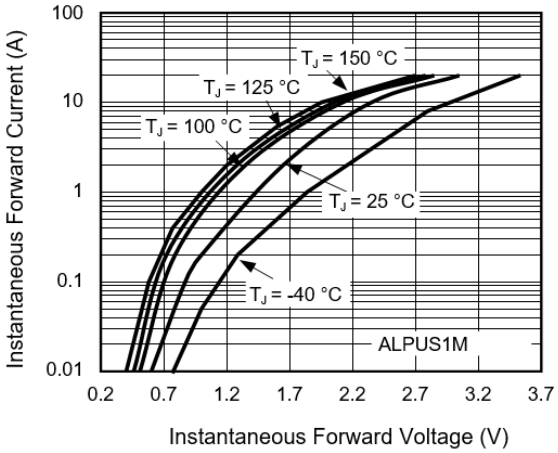


Fig.3 Typical Instantaneous Forward Characteristics

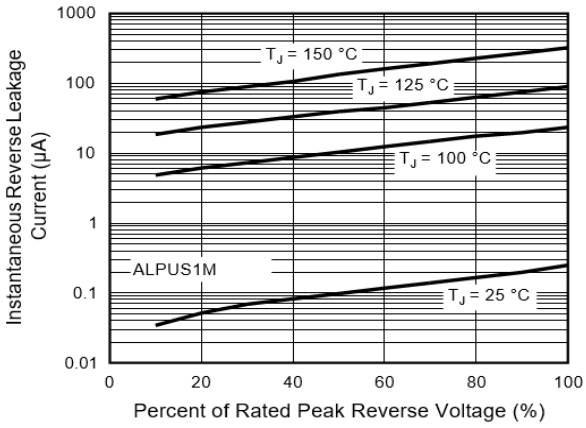


Fig.4 Typical Reverse Leakage Characteristics

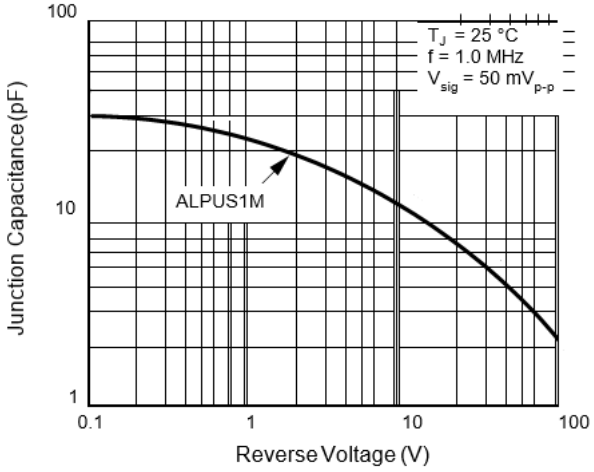


Fig.5 Typical Junction Capacitance

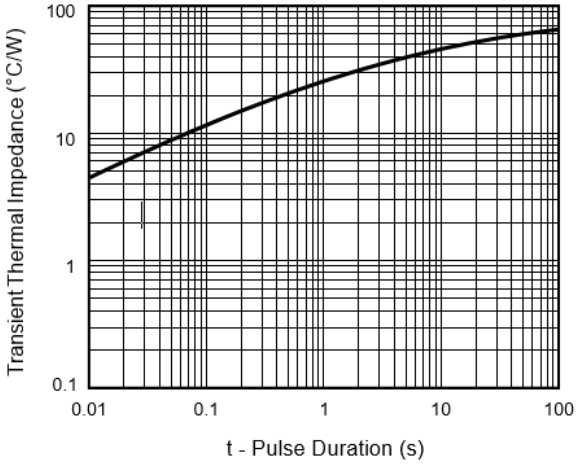


Fig.6 Typical Transient Thermal Impedance

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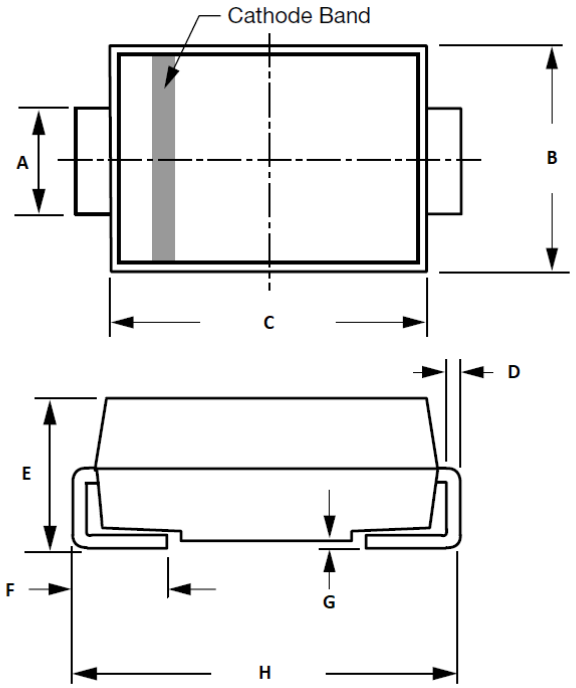
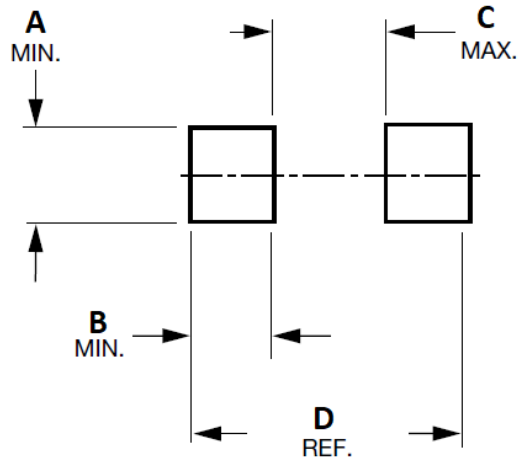
PACKAGE INFORMATION

DO-214AC (SMA)



OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.25	1.65	0.049	0.065
B	2.54	2.79	0.100	0.110
C	3.99	4.50	0.157	0.177
D	0.152	0.305	0.006	0.012
E	1.98	2.29	0.078	0.090
F	0.76	1.52	0.030	0.060
G	0	0.203	0	0.008
H	4.93	5.28	0.194	0.208

NOTES
- Controlling dimension: millimeters.
- Dimensioning and tolerances per ANSI Y14.5M, 1985.
- Dimensions are exclusive of mold flash and metal burrs.



PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.68	-	0.066	-
B	1.52	-	0.060	-
C	-	1.88	-	0.074
D	5.28	-	0.208	-

NOTES
1. Controlling dimension: millimeters.

All ALPINESEMI™ parts are manufactured at the facility approved ISO/TS 16949, ISO 9001 and ISO 14001

CUSTOMER NOTE:

DISCLAIMER

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1. ALPINESEMI™ Semiconductor Devices are RoHS compliant and hence customers are requested to dispose as per the prevailing Environmental Legislation put forth in their specific country.

2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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